

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (original) An obstacle detection stopping device of a solar radiation shielding apparatus, which rotatably supports a winding pulley; supports a solar radiation shielding member by a lifting cord supported by said winding pulley; enables said solar radiation shielding member to be led in by rotation driving said winding pulley in a rolling-up direction of the lifting cord with a driving shaft rotated by an operating means; enables said solar radiation shielding member to perform lead-out operation by rotating said winding pulley in an unwinding direction of the lifting cord by a tension exerted on said lifting cord on the basis of operation of said operating means; and stops the lead-out operation by detecting an obstacle coming into contact with said solar radiation shielding member at the time of the lead-out operation of said solar radiation shielding member,

said obstacle detection stopping device comprising:

an obstacle detection means which blocks rotation of said winding pulley that supports said lifting cord when a tension in a lead-out direction is not exerted to said lifting cord; and

a stopping means which blocks rotation of said driving shaft on the basis of rotation relative to said winding pulley in which rotation is blocked on the basis of function of said obstacle detection means and said driving shaft.

2. (original) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 1, wherein said obstacle detection means is configured by a friction generating means formed between said winding pulley and a supporting member which rotatably supports said winding pulley.

3. (original) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 1, wherein said stopping means includes a cam mechanism in which said stopping means becomes an engagement state or a disengagement state with a supporting member which rotatably supports said winding pulley on the basis of rotation relative to said winding pulley and said driving shaft.

4. (currently amended) The obstacle detection stopping device of the solar radiation shielding apparatus according to ~~any one of claims 1 to 3~~ claim 1,

wherein said stopping means includes:

a first stopping means formed nonrotatably relative to said winding pulley and movably relative thereto along an axial direction and having a sliding hole inclined with respect to an axis line of said winding pulley;

a second stopping means formed rotatably relative to said first stopping means within a predetermined range and movably relative thereto in the axial direction by including a sliding projected part nonmovable relative to said winding pulley and sliding inside said sliding hole; and

a third stopping means which engages with said first stopping means and stops rotation of said first stopping means,

in which said first stopping means moves in the axial direction by the rotation relative to said second stopping means and stops the rotation by engaging with said third stopping means; and

said second stopping means stops the rotation of said driving shaft by engagement between a controlling projected part provided in said second stopping means the basis of the rotation stop of said first stopping means and an engaging projected part formed in said winding pulley and formed engageably with said controlling projected part.

5. (original) The obstacle detection stopping device of the obstacle detection stopping device according to claim 4, wherein said first stopping means is configured to

arrange a plurality of braking claws, which engages with said third stopping means, formed at even angles along a circumferential direction.

6. (currently amended) The obstacle detection stopping device of the solar radiation shielding apparatus according to ~~any one of claims 1 to 3~~ claim 1, wherein said stopping means is provided at only two winding pulleys arranged on both sides of said driving shaft.

7. (new) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 2,

wherein said stopping means includes:

a first stopping means formed nonrotatably relative to said winding pulley and movably relative thereto along an axial direction and having a sliding hole inclined with respect to an axis line of said winding pulley;

a second stopping means formed rotatably relative to said first stopping means within a predetermined range and movably relative thereto in the axial direction by including a sliding projected part nonmovable relative to said winding pulley and sliding inside said sliding hole; and

a third stopping means which engages with said first stopping means and stops rotation of said first stopping means,

in which said first stopping means moves in the axial direction by the rotation relative to said second stopping means and stops the rotation by engaging with said third stopping means; and

said second stopping means stops the rotation of said driving shaft by engagement between a controlling projected part provided in said second stopping means the basis of the rotation stop of said first stopping means and an engaging projected part formed in said winding pulley and formed engageably with said controlling projected part.

8. (new) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 3,

wherein said stopping means includes:

a first stopping means formed nonrotatably relative to said winding pulley and movably relative thereto along an axial direction and having a sliding hole inclined with respect to an axis line of said winding pulley;

a second stopping means formed rotatably relative to said first stopping means within a predetermined range and movably relative thereto in the axial direction by including a sliding projected part nonmovable relative to said winding pulley and sliding inside said sliding hole; and

a third stopping means which engages with said first stopping means and stops rotation of said first stopping means,

in which said first stopping means moves in the axial direction by the rotation relative to said second stopping means and stops the rotation by engaging with said third stopping means; and

said second stopping means stops the rotation of said driving shaft by engagement between a controlling projected part provided in said second stopping means the basis of the rotation stop of said first stopping means and an engaging projected part formed in said winding pulley and formed engageably with said controlling projected part.

9. (new) The obstacle detection stopping device of the obstacle detection stopping device according to claim 7, wherein said first stopping means is configured to arrange a plurality of braking claws, which engages with said third stopping means, formed at even angles along a circumferential direction.

10. (new) The obstacle detection stopping device of the obstacle detection stopping device according to claim 8, wherein said first stopping means is configured to arrange a plurality of braking claws, which engages with said third stopping means,

formed at even angles along a circumferential direction.

11. (new) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 2, wherein said stopping means is provided at only two winding pulleys arranged on both sides of said driving shaft.

12. (new) The obstacle detection stopping device of the solar radiation shielding apparatus according to claim 3, wherein said stopping means is provided at only two winding pulleys arranged on both sides of said driving shaft.